

GENERAL DESCRIPTION

The 74LVC245A is an octal bus transceiver with 3-state outputs, which can accept supply voltage range from 1.65V to 3.6V. The device is mainly used for asynchronous communication between data buses. Both 3.3V and 5V devices can drive inputs, enabling this device to operate as translator in a mixed 3.3V and 5V system environment.

The A_n and B_n are 8-bit data input-output ports, DIR is the direction control input and \overline{OE} is the output enable input. When DIR is set high, it allows transmission from A_n to B_n . When DIR is set low, it allows transmission from B_n to A_n . \overline{OE} can be used to make the outputs disabled so that the buses are effectively isolated.

\overline{OE} should be connected to V_{CC} by using a pull-up resistor to ensure the high-impedance state in the period of power-up or power-down, and the minimum resistance depends on the current-sinking capability of the driver.

This device is highly suitable for partial power-down applications using power-off leakage current (I_{OFF}) circuit. When the device is powered down, the current backflow will be prevented from passing through the device.

FUNCTION TABLE

CONTROL INPUT		INPUT/OUTPUT	
OE	DIR	A_n	B_n
L	L	$A_n = B_n$	Inputs
L	H	Inputs	$B_n = A_n$
H	X	Z	Z

H = High Voltage Level
 L = Low Voltage Level
 Z = High-Impedance State
 X = Don't Care

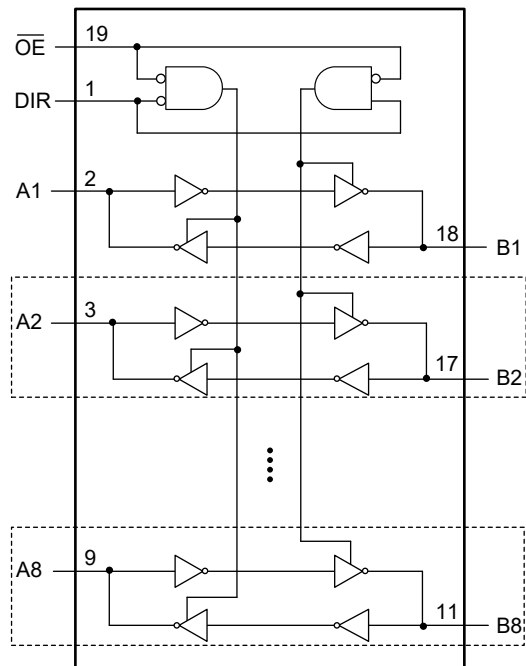
FEATURES

- Wide Supply Voltage Range: 1.65V to 3.6V
- Inputs Accept Voltages up to 5.5V
- +24mA/-24mA Output Current
- All Ports Support Mixed Mode Signal Operation
- Support Partial Power-Down Mode
- -40°C to +125°C Operating Temperature Range
- Available in Green SSOP-20 and TSSOP-20 Packages

APPLICATIONS

- Medical System
- Computing: Server, PC and Notebook
- Telecom System
- Industrial System

LOGIC DIAGRAM



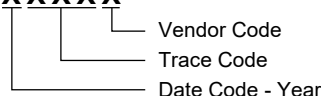
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
74LVC245A	SSOP-20	-40°C to +125°C	74LVC245AXSS20G/TR	74LVC245A XSS20 XXXXX	Tape and Reel, 2000
	TSSOP-20	-40°C to +125°C	74LVC245AXTS20G/TR	0BNXTS20 XXXXX	Tape and Reel, 4000

MARKING INFORMATION

NOTE: XXXXX = Date Code, Trace Code and Vendor Code.

XXXXX



Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

ABSOLUTE MAXIMUM RATINGS ⁽¹⁾

Supply Voltage, V_{CC}	-0.5V to 6.5V
Input Voltage, V_I ⁽²⁾	-0.5V to 6.5V
Output Voltage Range, V_O ⁽²⁾	
3-State Mode	-0.5V to 6.5V
High-State or Low-State.....	-0.5V to MIN (6.5V, $V_{CC} + 0.5V$)
Input Clamp Current, I_{IK} ($V_I < 0V$).....	-50mA
Output Clamp Current, I_{OK} ($V_O < 0V$).....	-50mA
Continuous Output Current, I_O	$\pm 50mA$
Continuous Current through V_{CC} or GND.....	$\pm 100mA$
Junction Temperature ⁽³⁾	+150°C
Storage Temperature Range	-65°C to +150°C
Lead Temperature (Soldering, 10s).....	+260°C
ESD Susceptibility	
HBM.....	7000V
CDM	1000V

RECOMMENDED OPERATING CONDITIONS

Supply Voltage, V_{CC}	1.65V to 3.6V
Input Voltage, V_I	0V to 5.5V
Output Voltage Range, V_O	
3-State Mode	0V to 3.6V
High-State or Low-State.....	0V to V_{CC}
High-State or Low-State Output Current, I_O	$\pm 24mA$
Input Transition Rise or Fall Rate, $\Delta t/\Delta V$	10ns/V (MAX)
Operating Temperature Range	-40°C to +125°C

OVERSTRESS CAUTION

- Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability. Functional operation of the device at any conditions beyond those indicated in the Recommended Operating Conditions section is not implied.
- The minimum input voltage ratings and output voltage ratings may be exceeded if the input and output current ratings are observed.
- The performance capability of a high-performance integrated circuit in conjunction with its thermal environment can create junction temperatures which are detrimental to reliability.

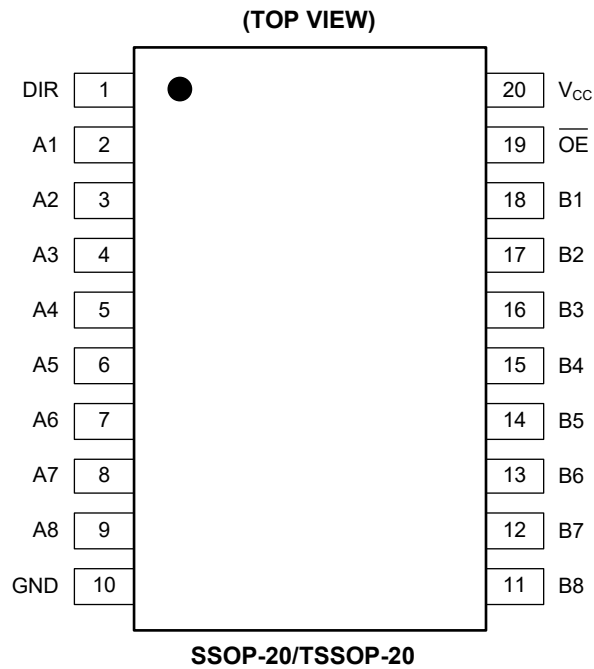
ESD SENSITIVITY CAUTION

This integrated circuit can be damaged if ESD protections are not considered carefully. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because even small parametric changes could cause the device not to meet the published specifications.

DISCLAIMER

SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

PIN CONFIGURATION

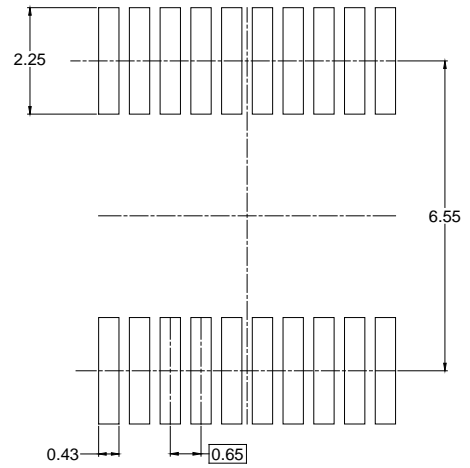
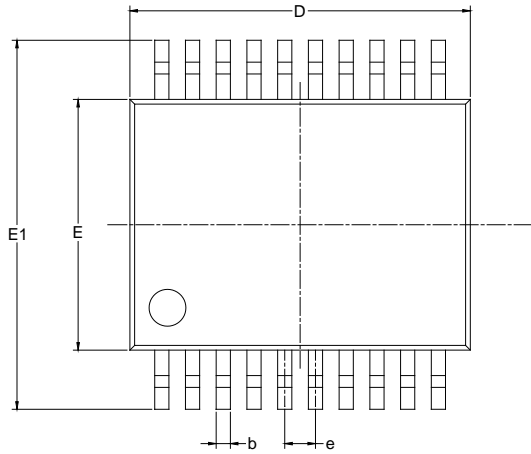


PIN DESCRIPTION

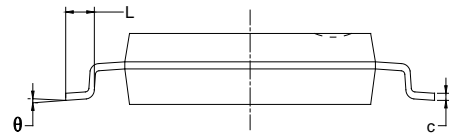
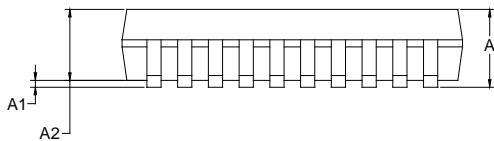
PIN	NAME	FUNCTION
1	DIR	Direction Control Input.
2, 3, 4, 5, 6, 7, 8, 9	A1, A2, A3, A4, A5, A6, A7, A8	Data Inputs/Outputs.
10	GND	Ground.
11, 12, 13, 14, 15, 16, 17, 18	B8, B7, B6, B5, B4, B3, B2, B1	Data Inputs/Outputs.
19	\overline{OE}	Output Enable Input (Active Low).
20	V_{CC}	Supply Voltage.

PACKAGE OUTLINE DIMENSIONS

SSOP-20



RECOMMENDED LAND PATTERN (Unit: mm)



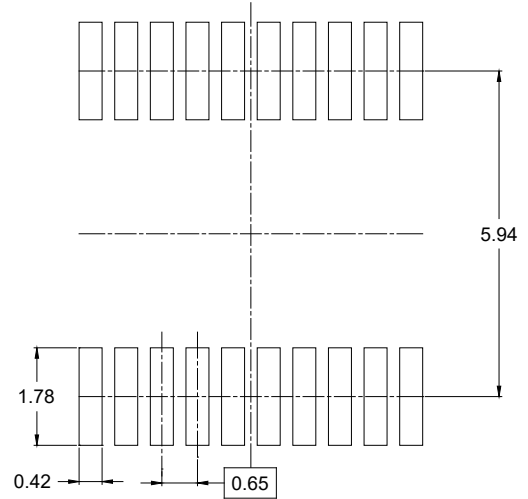
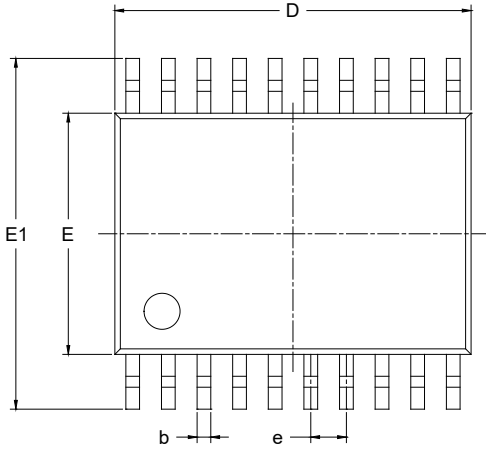
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A		1.730		0.068
A1	0.050	0.230	0.002	0.009
A2	1.400	1.600	0.055	0.063
b	0.220	0.380	0.009	0.015
c	0.090	0.250	0.004	0.010
D	7.000	7.400	0.276	0.291
E	5.100	5.500	0.201	0.217
E1	7.600	8.000	0.299	0.315
e	0.65 BSC		0.026 BSC	
L	0.550	0.950	0.022	0.037
θ	0°	8°	0°	8°

NOTES:

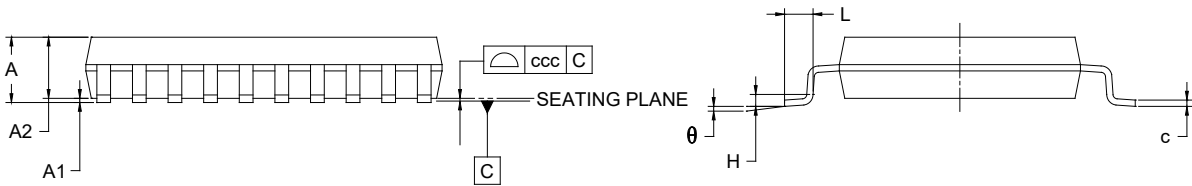
1. Body dimensions do not include mode flash or protrusion.
2. This drawing is subject to change without notice.

PACKAGE OUTLINE DIMENSIONS

TSSOP-20



RECOMMENDED LAND PATTERN (Unit: mm)



Symbol	Dimensions In Millimeters		
	MIN	MOD	MAX
A	-	-	1.200
A1	0.050	-	0.150
A2	0.800	-	1.050
b	0.190	-	0.300
c	0.090	-	0.200
D	6.400	-	6.600
E	4.300	-	4.500
E1	6.200	-	6.600
e	0.650 BSC		
L	0.450	-	0.750
H	0.250 TYP		
θ	0°	-	8°
ccc	0.100		

NOTES:

1. Body dimensions do not include mode flash or protrusion.
2. This drawing is subject to change without notice.
3. Reference JEDEC MO-153.

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
SSOP-20	13"	16.4	8.40	7.75	2.50	4.0	12.0	2.0	16.0	Q1
TSSOP-20	13"	16.4	6.80	6.90	1.50	4.0	8.0	2.0	16.0	Q1

D00001

PACKAGE INFORMATION

CARTON BOX DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF CARTON BOX

Reel Type	Length (mm)	Width (mm)	Height (mm)	Pizza/Carton
13"	386	280	370	5

DD0002